with $$X_{1m} = D_m \chi_m,$$

$$\chi_m = \frac{1}{B_{11}(m)}\left[1 + \frac{B_{13}^2(m)}{B_{11}(m)B_{33}(m) - B_{13}^2(m)}\right], \quad (3.1)$$

$$B_{11}(0) = \frac{3\pi N e_0^4 \sqrt{2m_3}}{8\varkappa^3 \varepsilon^{7/2} m_1 \beta^3}\left\{2\left(\operatorname{arc\,tg}\beta - \frac{\beta}{1+\beta^2}\right)\ln\frac{1}{\gamma^2} - 2\operatorname{arc\,tg}\beta\ln(1+\beta^2) + \right. \quad (3.2).$$

$$\left. + 4L(\operatorname{arc\,tg}\beta) + (1+\beta^3)\left[\operatorname{arc\,tg}\beta + \frac{\beta(\beta^2-1)}{(1+\beta^2)^2}\right]\gamma^2\right\},$$

Thus for $B_{11}(m)$

$$B_{11}(1) = \frac{3\pi N e_0^4 \sqrt{2m_3}}{8\varkappa^3 \varepsilon^{7/2} m_1 \beta^3}\left\{[(\beta^3-1)\operatorname{arc\,tg}\beta + \beta]\ln\frac{1}{\gamma^2} - \right. \quad (3.10)$$

$$\left. - 2\beta^2\operatorname{arc\,tg}\beta - (\beta^3-1)\operatorname{arc\,tg}\beta\ln(1+\beta^2) + 2(\beta^2-1)L(\operatorname{arc\,tg}\beta) + \right.$$

$$\left. + \frac{1+\beta^2}{2}\left[(3\beta^2-1)\operatorname{arc\,tg}\beta + \frac{\beta(3\beta^2+1)}{1+\beta^2}\right]\gamma^2\right\}; \quad (3.11)$$

with the Lobachevskiy function $L(t) = -\int_0^t \ln\cos x\,dx$. As has already been shown in Ref. 1, all fluxes can be expressed by the relaxation

time tensor. Its components depend only on energy. In section 4 the probability electron of scattering from acoustic phonons is determined by means of the deformation potential.

$$W(\vartheta\varphi)=\frac{\pi kT}{2\rho V\hbar}\sum_{\alpha}\frac{1}{Q_{\alpha}^{2}(\vartheta\varphi)}\left[\sum_{il}D_{il}(\eta_i e_l^{\alpha}+\eta_l e_i^{\alpha})\right]^2, \tag{4.7}$$

$$\eta_1=\sqrt{m_1}\sin\vartheta\cos\varphi,\quad \eta_2=\sqrt{m_2}\sin\vartheta\sin\varphi,\quad \eta_3=\sqrt{m_3}\cos\vartheta. \tag{4.8}$$

is found, where D_{il} is the tensor of the deformation potential constants, e^{α} the polarization vector, ρ the crystal density, V its volume, $\Omega_{\alpha}(\vartheta\varphi)$ is a certain function of the angles ϑ and φ. In section 5 the properties of the coefficients

$$B_{jk}(pm)=\frac{4\sqrt{2m_1m_2m_3}}{(2\pi\hbar)^3}i^{m-p}\sum_{\alpha\sigma\tau}\mathcal{L}_{jk}^{\alpha}\mathcal{R}_{jk}^{\alpha}(pm), \tag{5.1}$$

with

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$$\mathcal{L}^{\sigma}_{jk} = 2\sqrt{\frac{(j-\sigma)!\,(k-\sigma)!}{(j+\sigma)!\,(k+\sigma)!}}\int_0^{\frac{\pi}{2}} d\theta \sin\theta\cos\theta\, \dot{P}^{\sigma}_{j}(\cos\theta)\, P^{\sigma}_{k}(\cos\theta), \qquad (5.2)$$

$$\mathcal{R}^{\sigma}_{jk}(pm) = \int d\Omega P^{j}_{\sigma p}(\cos\theta)\, \dot{P}^{k}_{\sigma m}(\cos\theta)\, e^{i(m-p)\varphi}, \qquad (5.3)$$

are investigated. The $\mathcal{L}^{(0)}_{jk}$ and $\mathcal{L}^{(2)}_{jk}$ are tabulated for some j and k values. In the last section the relaxation time tensor is calculated for electron scattering from acoustic phonons in Ge, Si and Bi_2Te_3. For k = j = 1 and $W(\varphi, \pi+\varphi) = W(\varphi, \pi+\varphi)$ the general formulas are given:

$$\begin{cases} B_{11}(00)\,X_{10} = D_0, \\ B_{11}(11)\,X_{11} + B_{11}(1,-1)\,X_{1,-1} = D_1, \\ B_{11}(-1,1)\,X_{11} + B_{11}(-1,-1)\,X_{1,-1} = D_{-1}; \end{cases} \qquad (6.1)$$

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$$n'_k = n'_{\bar{k}} = \frac{D_0 Y_{10}(\vartheta_0\varphi_0)}{B_{11}(00)} + \frac{D_{-1}B_{11}(11) - D_1 B^*_{11}(1,-1)}{B^2_{11}(11) - |B_{11}(1,-1)|^2} Y_{1,-1}(\vartheta_0\varphi_0) + \frac{D_1 B_{11}(11) - D_{-1}B_{11}(1,-1)}{B^2_{11}(11) - |B_{11}(1,-1)|^2} Y_{11}(\vartheta_0\varphi_0). \quad (6.2)$$

$$B_{11}(1,-1) = |B_{11}(1,-1)| e^{i\psi} \quad (6.3)$$

$$\tau_{11} = \frac{B_{11}(11) - |B_{11}(1,-1)|\cos\psi}{B^2_{11}(11) - |B_{11}(1,-1)|^2}; \quad \tau_{22} = \frac{B_{11}(11) + |B_{11}(1,-1)|\cos\psi}{B^2_{11}(11) - |B_{11}(1,-1)|^2};$$
$$\tau_{33} = \frac{1}{B_{11}(00)}; \quad \tau_{12} = \sqrt{\frac{m_1}{m_2}} \frac{|B_{11}(1,-1)|\sin\psi}{B^2_{11}(11) - |B_{11}(1,-1)|^2};$$
$$\tau_{21} = \frac{m_2}{m_1}\tau_{12}. \quad (6.4).$$

Then they are applied first to Ge and Si, then to Bi_2Te_3. There are 5 figures, 5 tables, and 14 references: 9 Soviet and 5 non-Soviet. The three references to English-language publications read as follows: R. B. Dingle, Phil. Mag., 46, 831, 1955; F. Ham. Phys. Rev. 100, 1251,

Card 7/8

30774
S/181/61/003/011/006/056
Anisotropic scattering of electrons ... B102/B138

1955; J. R. Drabble a. R. Wolfe. Proc. Phys. Soc. B69, 1101, 1956.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: May 9, 1961

Card 8/8

SAMOYLOVICH, A.G.; KORENBLIT, I.Ya.; DAKHOVSKIY, I.V.

Anisotropic scattering of electrons on ionized impurities. Dokl. AN SSSR 139 no.2:355-358 Jl '61. (MIRA 14:7)

1. Institut poluprovodnikov AN SSSR. Predstavleno akademikom A.A. Lebedevym.

(Electrons--Scattering)

33355
S/181/62/004/001/027/052
B102/B104

24,7600 (1385,1043, 1055,1164)

AUTHOR: Korenblit, I. Ya.

TITLE: Galvanomagnetic effects in semiconductors with anisotropic electron scattering

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 168 - 178

TEXT: In previous papers, the author, together with A. G. Samoylovich, I. V. Dakhovskiy, and V. D. Iskra (FTT, 3, 2939, 1961; FTT, 3, 3285, 1961), proposed a method for solving the kinetic equation for electrons with an isoenergetic surface. This method is demonstrated, and a theory of galvanomagnetic effects is developed for the case where the electrons are scattered with an anisotropic energy spectrum from impurity ions. The kinetic equation

$$\hat{R}n'_{\mathbf{k}} + \hat{D}n^{(0)}_{\mathbf{k}} + \hat{M}n'_{\mathbf{k}} = 0, \qquad (2,1)$$

is valid with

$$\hat{R}n'_{\mathbf{k}} = \sum_{\mathbf{k}'} W_{\mathbf{k}\mathbf{k}'}(n'_{\mathbf{k}'} - n'_{\mathbf{k}}) = -\sum_{l,m,n,k} B_{kl}(nm) X_{lm} Y_{kn}(\vartheta_0\varphi_0), \qquad (1,3)$$

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Galvanomagnetic effects in...

$$\hat{D}n_{\mathbf{k}}^{(0)} = -\frac{e_0}{\hbar}\frac{\partial n_{\mathbf{k}}^{(0)}}{\partial \varepsilon}\sum_i \frac{\partial \varepsilon}{\partial k_i}E_i, \qquad (2,2)$$

$$\hat{M}n'_{\mathbf{k}} = \frac{e_0}{c_0\hbar}\mathbf{H}\left[\mathbf{v}\times\nabla_{\mathbf{k}}\right]n'_{\mathbf{k}}. \qquad (2,3)$$

$$n'_{\mathbf{k}} = \sum_{lm} X_{lm}(\varepsilon)\, Y_{lm}(\vartheta_0\varphi_0). \qquad (1,2)$$

Then a transition is made from $\vec{v}$ and $\vec{k}$ to the quasimomentum $\vec{\xi}$, and with the notations

$$\Omega_1 = \frac{e_0H_1}{2c_0\sqrt{m_2m_3}},\quad \Omega_2 = \frac{e_0H_2}{2c_0\sqrt{m_1m_3}},\quad \Omega_3 = \frac{e_0H_3}{2c_0\sqrt{m_1m_2}},\quad \Omega = \Omega_3 + i\Omega_1, \qquad (2,5)$$

$$\alpha_{lm} = \sqrt{(l-m)(l+m+1)}, \qquad (2,6)$$

the set

$$\sum_{lm} B_{kl}(nm)X_{lm} = D_n\delta_{k1} + \Omega\alpha_{kn-1}X_{kn-1} - \Omega^*\alpha_{kn}X_{kn+1} + 2in\Omega_3X_{kn}. \qquad (2,8)$$

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is obtained. This set can also be obtained by a variation method. If the energy spectrum can be represented as an ellipsoid of revolution, then $B_{kl}(nm) = B_{kl}(n)\delta_{nm}$, and (2.8) goes over to

$$\sum_l B_{kl}(n)X_{ln} = D_n\delta_{kl} + \Omega\alpha_{kn-1}X_{kn-1} - \Omega^*\alpha_{kn}X_{kn+1} + 2i\Omega_3 nX_{kn} \quad (2.10).$$

This set can be further reduced to

$$\sum_l b_{kl}(n)X_{ln} = d_n\delta_{kl} + Q_{kn}. \quad (2,13)$$

when the notations

$$\omega = \frac{\Omega}{B_{11}(1)}, \quad \omega_3 = \frac{\Omega_3}{B_{11}(1)}, \quad b_{kl}(n) = \frac{B_{kl}(n)}{B_{11}(1)}; \quad d_n = \frac{D_n}{B_{11}(1)}, \quad (2,11)$$

$$\omega\alpha_{kn-1}X_{kn-1} - \omega^*\alpha_{kn}X_{kn+1} + 2i\omega_3 nX_{kn} = Q_{kn}. \quad (2,12)$$

are used. With $|\omega|, |\omega_3| \ll 1$ (weak magnetic field), the set (2.13) can be solved in successive approximation. With

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Galvanomagnetic effects in...

$$X_{10}^{(1)} = d_0\chi_{10} - 2\sum_i \alpha_{i0}\chi_{i0}\chi_{i1}R_i d_1'\omega^*, \quad \text{and}$$

$$X_{11}^{(1)} = d_1\chi_{11} + \sum_i \chi_{i1}[\omega\alpha_{i0}d_0\chi_{i0} + 2i\omega_3\chi_{i1}d_1]; \qquad (3,3)$$

and $$n_k' = -e_0\frac{\partial n_k^{(0)}}{\partial \varepsilon}\sum_{ij}\tau_{ij}v_iE_j. \qquad (1,9)$$ one finds -

$$\left.\begin{aligned} \tau_{12}^{(1)} &= 2\Omega_3\frac{\chi_{11}^2}{B_{11}^2(1)}\sum_i\frac{\chi_{i1}^2}{\chi_{11}^2} = 2\Omega_3\tau_{11}^{(0)}\sum_i\frac{\chi_{i1}^2}{\chi_{11}^2}, \\ \tau_{13}^{(1)} &= -2\Omega_2\sqrt{\frac{m_1}{m_3}}\tau_{11}^{(0)}\tau_{33}^{(0)}\sum_i\frac{\alpha_{i0}}{\sqrt{2}}\frac{\chi_{i1}\chi_{i0}}{\chi_{11}\chi_{10}}, \\ \tau_{23}^{(1)} &= 2\Omega_1\sqrt{\frac{m_1}{m_3}}\tau_{11}^{(0)}\tau_{33}^{(0)}\sum_i\frac{\alpha_{i0}}{\sqrt{2}}\frac{\chi_{i1}\chi_{i0}}{\chi_{11}\chi_{10}}. \end{aligned}\right\} \qquad (3,6)$$

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Galvanomagnetic effects in...

This series converges rapidly so that the first terms

$$\left.\begin{aligned} \tau_{12}^{(1)} &= 2\Omega_3\tau_{11}^{(0)2}, \quad \tau_{13}^{(1)} = -2\Omega_2\sqrt{\frac{m_1}{m_3}}\tau_{11}^{(0)}\tau_{33}^{(0)}, \\ \tau_{12}^{(1)} &= 2\Omega_1\sqrt{\frac{m_1}{m_3}}\tau_{11}^{(0)}\tau_{33}^{(0)}. \end{aligned}\right\} \qquad (3,10)$$

satisfy the requirements of accuracy. The case of magnetic conductivity is calculated as an example, and the alterations required for a strong magnetic field are discussed. Summing up: For an electron system in external magnetic and electric fields, the kinetic equation can be solved even if the collision term cannot be expressed by the tensor of relaxation time (scattering from impurity ions). For a weak magnetic field, the galvanomagnetic coefficients can be expressed by rapidly converging series with computable terms. If only the first terms are retained, the galvanomagnetic coefficients deviate from those obtained by Herring and Vogt only in that $\tilde{\tau}_{ii}$ stands for $\tau_{ii}^{(0)}$. For strong anisotropy, e. g., n-type Ge, this substitution leads to an increase of the coefficients by 2 - 3 times. For a strong magnetic field, the

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Galvanomagnetic effects in...

formulas are fairly consistent with those of Herring and Vogt. There are 12 references: 6 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: F. Garcia-Moliner. Proc. Roy. Soc. A249, 73, 1959; R. W. Keyes. Phys. Rev. 111, 34, 1958; R. A. Laff, H. Y. Fan. Phys. Rev. 112, 317, 1958; D. Long, J. Myers. Phys. Rev. 120, 39, 1960.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: July 24, 1961

Card 6/6

S/181/62/004/006/044/051
B108/B138

AUTHOR: Konenblit, I. Ya.

TITLE: Solution of the equation of motion taking account of electron scattering from impurities

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1667-1669

TEXT: Impurity scattering of electrons is considered for cases where the isoenergetic surfaces are oblate ellipsoids ($m_{\parallel} < m_{\perp}$). $CdAs_2$ is an example. In this instance it is demonstrated that the scattering of electrons is more anisotropic than in the case of an oblong ellipsoid of revolution (A. G. Samoylovich et al. DAN SSSR, 139, 355, 1961). There are 2 figures.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: February 9, 1962

Card 1/1

SAMOYLOVICH, A.G.; KORENBLIT, I.Ya.; DAKHOVSKIY, I.V.; ISKRA, V.D.

Solution of a kinetic equation in the case of anisotropic electron scattering. Fiz.tver.tela 3 no.10:2939-2952 O '61.
(MIRA 14:10)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Differential equations) (Electrons--Scattering)

KORENBLIT, I.Ya.

Galvanomagnetic phenomena in semiconductors in anistropic electron scattering. Fiz. tver. tela 4 no.1:168-178 Ja '62. (MIRA 15:2)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Electrons--Scattering)
(Semiconductors--Magnetic properties)

KORENBLIT, I.Ya.

Solution to a kinetic equation involving electron scattering on impurities. Fiz. tver. tela 4 no.6:1667-1669 Je '62. (MIRA 16:5)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Electrons—Scattering) (Equations)

KOHENBLIT, I. YA.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Technical Physics Institute imeni A. F. Ioffe in 1962:

"Investigation of the Effect of Scattering Anisotropy on Galvanomagnetic Effects in Several Semiconductors."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

L 13843-63 EWT(1)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3 Pz-4 65
AT/IJP(C)
ACCESSION NR: AP3003151 S/0056/63/044/006/2150/2158 64

AUTHOR: Gurevich, L. E.; Korenblit, I. Ya.

TITLE: Electrical conductivity and galvanomagnetic coefficients of semimetals and degenerate semiconductors in a strong electric field

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 2150-2158

TOPIC TAGS: electric conductivity, galvanomagnetic coefficients, phonon equilibrium, mutual electron-phonon drag, Hall conductivity

ABSTRACT: It is shown that the electrical conductivity and galvanomagnetic coefficients of semimetals and of degenerate semiconductors in a strong electric field are considerably modified if the phon system is not in equilibrium. The lack of phonon equilibrium is manifest in the "heating" of the phonons increase in the number of long-wave phonons in a strong electric field) and in the "mutual" dragging of the electrons and phonons. The first circumstance leads to a decrease in the mean free path of the electrons scattered by phonons when the field is increased, and is the cause of the dependence of the electric conductivity on the field strength in the zeroth approximation with respect to degeneracy. In a strong magnetic field the electric conductivity first increases with increasing electric field intensity, reaches a maximum, and at sufficiently high field

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ACCESSION NR: AP3003151

strengths it decreases in inverse proportion to the field and is independent of the magnetic field strength; the current, on the other hand, increases monotonically and approaches saturation. The Hall conductivity decreases with increasing electric field and is proportional the inverse square of the field in sufficiently strong fields, whereas the Hall current exhibits a maximum. The deviation from Ohm's law in weak electric fields is negative in a weak magnetic field and reverses sign with increasing field, approaching zero in strong magnetic fields. The "mutual" drag of the electrons and phonons results in a considerable increase in the electron free path, leading to a decrease of the electric field at which the current saturates. Orig. art. has: 4 figures and 32 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute of the Academy of Sciences SSSR)

SUBMITTED: 14Feb63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 006 OTHER: 001

Card 2/2

S/0181/64/006/003/0856/0863

ACCESSION NR: AP4019850

AUTHORS: Gurevich, L. E.; Korenblit, I. Ya.

TITLE: The effect of phonon drag on electrons and the effect of their "mutual" entrainment on the kinetic coefficients of semimetals

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 856-863

TOPIC TAGS: phonon drag, entrainment, semimetal, semiconductor, thermoelectromotive force, electric conductivity, Nernst coefficient, degeneracy

ABSTRACT: The authors have solved kinetic equations for electrons and phonons in semimetals (or degenerate semiconductors) in an arbitrary nonquantized magnetic field, considering the entrainment of electrons by phonons and the mutual entrainment of electrons and phonons. They have investigated semimetals with carriers of a single sign and semimetals containing both electrons and holes, and they have obtained a formula for the effective electron path:

$$l_{eff}=\left(\frac{1}{l_d}+\frac{4}{k_1+3}\frac{T}{sp}\frac{1}{L_{fd}(2p)}\right)^{-1}\gg l,$$

where l and L are the paths of electrons and phonons, respectively, with the

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ACCESSION NR: AP4019850

subscripts indicating mechanism of scattering (f - phonons, d - defects), T is absolute temperature, s the velocity of sound, and other symbols are standard. This expression is a refinement of the determination of Parrot for nondegenerate semiconductors. The authors have shown that the entrainment of electrons by phonons increases the thermoelectromotive force and increases the Nernst coefficient in semimetals with both types of carriers, up to values characteristic of nondegenerate electrons. Mutual entrainment may sharply increase electrical conductivity when no magnetic field is present, and both the conductivity and the Nernst coefficient are increased in strong magnetic fields. In addition, mutual entrainment substantially changes the temperature dependence. If the temperature dependence of the positive electron length is identical to the negative value, then the temperature dependence of the Nernst coefficient in strong and weak magnetic fields is the same as for a single type of carrier. Orig. art. has: 38 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute AN SSSR)

SUBMITTED: 020ct63 DATE ACQ: 31Mar64 ENCL: 00

SUB CODE: EC, SS NO REF SOV: 005 OTHER: 004

Card 2/2

L 18855-65 EWT(1)/EWG(k)/EWT(m)/EWA(d)/EPR/EWP(t)/EEC(b)-2/EWP(b) Pc-4
APWL/ASD(a)-5/SSD/AS(mp)-2/RAEM(c)/ESD(dp)/ESD(gs)/ESD(t)/IJP(c)/ JD/AT

ACCESSION NR: AP4043374 S/0181/64/006/008/2471/2477

AUTHORS: Gurevich, L. E.; Korenblit, I. Ya.

TITLE: Thermoelectromotive force in ferromagnetic metals at low temperatures and the drag of electrons by magnons

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2471-2477

TOPIC TAGS: thermal emf, phonon, magnon, ferromagnetic material, electron scattering, temperature dependence, low temperature transport

ABSTRACT: In ferromagnetic metals the thermal emf has electron, phonon, and magnon components. At the low temperatures considered here the magnon component is stronger than the phonon component and, at not too low temperatures, it may also be stronger than the electron component. The present paper deals with the longitudinal and transverse thermal emf allowing for the drag of electrons by moving magnons and for the mutual drag of the moving electrons and magnons.

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ACCESSION NR: AP4043374

It is shown that if electrons are scattered mainly from defects the total longitudinal thermal emf has an extremum in its dependence on the applied magnetic field. In strong fields the electron component of the transverse thermal emf decreases to zero while the magnon component remains finite and therefore dominates the effect. If the electrons are scattered mainly from magnons, the thermal emf can be found in the limiting cases of weak and strong magnetic fields. The transverse thermal emf tends to saturate in strong magnetic fields. The longitudinal power may be a nonmonotonic function of the magnetic field both in strong and in weak fields. A discussion of the temperature dependence of the thermal emf shows that the magnon component of the longitudinal effect is proportional to $T^{3/2}$, (T = temperature), while the electron component of the same effect in weak magnetic fields is proportional to T, if electrons are scattered mainly on defects, and proportional to T^{-1}, if electrons are scattered mainly on magnons. Orig. art. has: 33 formulas.

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ACCESSION NR: AP4043374

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Physicotechnical Institute AN SSSR)

SUBMITTED: 23Mar64 ENCL: 00

SUB CODE: EM, SS NR REF SOV: 005 OTHER: 001

Card 3/3

L.42149-65 EPA(s)-2/ EWP(z)/EWT(1)/EWT(m)/EPA(bb)-2/EWP(b)/EWA(d)/EWP(t) Pt-7
ACCESSION NR: AP5006514 JD S/0056/65/048/002/0652/0655

AUTHOR: Gurevich, L. E.; Korenblit, I. Ya.

TITLE: Electromagnetic spectrum of ferromagnetic metals in a strong electric field and its excitation

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 652-655

TOPIC TAGS: ferromagnetic metal, electromagnetic oscillation, spin wave oscillation, Hall effect

ABSTRACT: The article discusses the spectrum of electromagnetic oscillations produced in a ferromagnetic metal in the presence of a stationary external electric field. It is shown that a new oscillation mode, whose frequency is strongly dependent on the electric field at small values of the wave vector, is produced in the metal besides the ordinary spin-wave oscillations. The real part of the frequency of this mode differs from the ordinary spin-wave frequency only under certain conditions, and when the electric field exceeds a certain critical value the oscillations can become unstable and grow. Methods of decreasing the critical

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L 42149-65

ACCESSION NR: AP5006514

field are briefly discussed. "We thank Ye. I. Kondorskiy for important information on the properties of ferromagnetic metals." Orig. art. has: 17 formulas.

ASSOCIATION: None

SUBMITTED: 10Aug64 ENCL: 00 SUB CODE: EM, MM

NR REF SOV: 002 OTHER: 004

Card 2/2 CC

L 14140-66 EWT(m) DIAAP

ACC NR: AP6000864 SOURCE CODE: ur/0181/65/007/012/3617/3626

56
52

AUTHORS: Klochikhin, A. A.; Korenblit, I. Ya.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Peculiarities in the scattering of neutrons by ferromagnets in the region of ferroacoustic resonance

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3617-3626

TOPIC TAGS: scattering cross section, ferromagnetic material, neutron scattering, inelastic scattering, neutron polarization, phonon, interaction, nuclear resonance, magnetostriction

ABSTRACT: The authors studied the singularities in the cross section for inelastic scattering of slow neutrons (polarized and unpolarized) when the energy transfer is in the region of resonance between magnons and longitudinal or transverse phonons. Both incoherent and coherent scattering in single crystals and polycrystals are considered. It is shown that the cross sections for incoherent scattering by single

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L 11140-66
ACC NR: AP6000864

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crystals and coherent scattering by polycrystals have extrema when the energy transfer falls in the region of each of the resonances. In coherent scattering by single crystals there should be observed in this region two peaks each for absorption and emission of a quasi-particle, respectively, regardless of the relation between the cross sections of magnetic and nuclear resonances. The intensity of the peaks differs by some interference term, the magnitude and sign of which depend on the observation condition. The results are based on the assumption that each unit cell contains only one atom and that the phonon spectrum is isotropic, the latter true for most ferrites. It is concluded that experimental study of neutron scattering in the region of ferroacoustic resonance would afford added means of determining such characteristics of ferromagnets as the exchange interaction constant and the dependence of the magnetostrictuion constant on the frequency. Authors thank L. E. Gurevich for suggesting the topic and interest in the work, and G. M. Drabkin, O. V. Konstantinov and S. V. Maleyev for numerous valuable hints. Orig. art. has: 3 figures, 30 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 08Mar65/ ORIG REF: 009/ OTH REF: 010

Card FW 181 2/2

GUREVICH, L.E.; KORENBLIT, I.Ya.

Electromagnetic spectrum in ferromagnetic metals in a strong electric field and its excitation. Zhur. eksp. i teor. fiz. 48 no.2:652-655 F '65. (MIFA 18:11)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.

ACC NR: AP6033563 SOURCE CODE: UR/0181/66/008/010/3010/3018

AUTHOR: Korenblit, I. Ya.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Impedance of a ferromagnetic core and excitation of magnetic oscillations in a strong electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 3010-3018

TOPIC TAGS: ferromagnetic material, magnetic property, electric impedance, magnetic oscillation

ABSTRACT: This is a continuation of earlier work (ZhETF v. 48, 652, 1965) dealing with the influence of a strong electric field on the spectrum of magnetic oscillations of ferromagnets. In the present paper the author calculates the additional impedance introduced into the circuit by a core, and considers conditions under which the impedance depends essentially on the electric field and under which the reactance of a ferromagnetic plate can become negative, so that oscillations can be generated in the circuit. The theoretical procedure is similar to that used by L. E. Gurevich and B. L. Gel'mont (FTT v. 7, 697, 1965). The calculations show that the existence of low-frequency magnetic oscillations with linear dispersion and with a propagation velocity proportional to the electric field gives rise to an essential dependence of the impedance on the field. In particular, the impedance oscillates as a function of E_0.

Card 1/2

ACC NR: AP6033563

The conditions under which the impedance becomes negative are determined. The parameters involved in the theory are calculated for a number of ferromagnets, and the possibility of experimentally verifying the theoretical prediction is considered. The author thanks L. E. Gurevich and B. L. Gel'mont for numerous valuable remarks. Orig. art. has: 2 figures, 29 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 01Apr66/ ORIG REF: 015/ OTH REF: 006

Card 2/2

ACC NR: AP7007628 SOURCE CODE: UR/0386/67/005/003/0093/0096

AUTHOR: Korenblit, I. Ya.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences, SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

TITLE: "Hot" optical phonons in polar semiconductors

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 5, no. 3, 1967, 93-96

TOPIC TAGS: conduction electron, phonon, electron energy, phonon interaction, electron interaction, neutron scattering, electron temperature

ABSTRACT: The author discusses the feasibility of experimentally observing the degree of heating of longitudinal optical phonons (LOP) by drawing energy from crystal electrons heated by a strong electric field. It is shown that the degree of heating, as manifest by the shape of the phonon distribution function, depends on the relation between the phonon-phonon and phonon-electron collision frequencies, and that if the former is larger than the latter the heating of the phonon is facilitated and the degree of heating can be determined by measuring the non-ohmicity coefficient. Under conditions of difficult heating, the heating of the optical phonons can be determined by measuring the cross section for elastic scattering of neutrons with absorption of LOP. Some numerical estimates are given. The author thanks L. E. Gurevich and A. A. Klochikhin for continuous interest, and F. G. Bass and I. B. Levinson for fruitful

Card 1/2

ACC NR: AP7007628

discussions. Orig. art. has: 7 formulas.

SUB CODE: 20/ SUBM DATE: 06Nov66/ ORIG REF: 002/ OTH REF: 007

Card 2/2

KORENBLIT, L. L.

USSR/Physics - Ferromagnetics Mar 52

"Thermoelectric Phenomena in Ferromagnetics Near the Curie Temperature," A. G. Samoylovich, L. L. Korenblit, Chernovtsy State U

"Zhur Eksper i Teoret Fiz" Vol XXII, No 3, pp 360-366

Thermal dependence of Tompson and Peltier coeffs in ferromagnetics is computed near the Curie temp on the basis of s-d model created by Vonsovskiy (cf: "Zhur Eksper i Teoret Fiz" 16, 981, 1946). Received 9 Jun 51.

215T77

KORENBLIT, L. L.

USSR/Physics - Semiconductors Feb 53

"Present State of the Theory of Thermoelectric and Thermomagnetic Phenomena in Semiconductors," A. G. Samoylovich and L. L. Korenblit

Usp Fiz Nauk, Vol 49, No 2, pp 243-272

Review fundamental theoretical conceptions leading to clarification of coefs characterizing thermoelectric and thermomagnetic effects in semiconductors and compare results with exptl research. Part 2 deals with kinetic theory, allowing caln of these coefs. Work by S. I. Pekar, N. Bogolyubov, and S. Tyabilikov is emphasized.

251T59

PA 251T59

USSR/Physics - Semiconductors Mar 53

KORENBLIT, L. L.

"Present Status of the Theory of Thermoelectric and Thermomagnetic Phenomena of Semiconductors," A. G. Samoylovich and L. L. Korenblit

Usp Fiz Nauk, Vol 49, No 3, pp 337-383

Part II, kinetic theory. Part I appeared in issue No 2. State that the kinetic theory of thermoelec phenomena, in contrast to the thermodynamic theory, proceeds from definite model representations concerning the structure of metals and other elec conductors, and has as its main

(1) 257T85

task the calcn of the kinetic coeffs. Derive the distribution functions and kinetic eqs formally solve the kinetic eqs; generalize the laws of elec conductivity in the kinetic theory; derive the free path of electrons and the kinetic eqs in the high-temp case; discuss thermoelec phenomena in univalent metals at high temps, equilibrium of electrons in semiconductors, thermoelec phenomena in semiconductors with atomic lattice and in ionic semiconductors; derive distribution function in case of weak magnetic fields; discuss thermomagnetic and galvanomagnetic phenomena in univalent metals at high temps and in semiconductors; compare the theory of elec

(2) 257T85

phenomena in semiconductors with expts. Conclude that the urgent problem of analyzing the processes governing energy exchange of current-carriers with the lattice is more important than the new problems of statistically averaging quasi-particle parameters which are functions of temp. Cite 32 allied works (22 Soviet, 10 Western).

257T85

KORENBLIT

KORENBLIT, L. L.

USSR

Theory of magnetic properties of atomic semiconductors. L. L. Korenblit (Chernovits State Univ.). *Zhur. Eksptl. i Teoret. Fiz.* 24, 719–27(1954).—In the polar model of the crystal the lattice nodes can be nonpolar (occupied by a "right" or a "left" electron) or polar (occupied by a hole or by a doublet—2 electrons with opposite spins). By applying Bose calculus an expression is derived for the diamagnetic susceptibility $\chi_{dia} = -2\beta K(T)\mu_B^2/kT - 2/3\beta K(T)\mu^{*2}/kT$, where $K(T)$ is the av. no. of doublets or holes, $\mu_B = e\hbar/2mc$, and μ^* corresponds to the effective mass, m^*. From these considerations K. deduces that high values of susceptibility are obtained at large values of m^*. The width of the forbidden gap is connected to the activation energy of doublets and holes. The carriers of elec. and magnetic properties in semicond. are free "quasi particles" and not electrons.

S. Pakswer

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KORENBLIT, L. L.

Korenblit, L. L. -- "Questions of the Theory of Magnetism of Semiconductors." Min Higher Education USSR, Chernovtsy State U, Chernovtsy, 1955. (Dissertation for the Degree of Candidate in Physicomathematical Sciences.)

SO: Knizhnaya Letopis', No. 23, Moscow, June 1955, pp. 87-104

SOV/58-59-5-10952

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 149 (USSR)

AUTHOR: Korenblit, L.L.

TITLE: On the Efficiency of Semiconductor Thermoelements

PERIODICAL: Nauk zap. Chernivets'k. un-t, 1955, Vol 12, pp 129 - 140 (Ukr.; Russ. résumé)

ABSTRACT: The author investigated the dependence of the highest attainable efficiency of semiconductor thermoelements on the physical characteristics of the materials employed, as well as on the shape of the conductors of the thermoelectric circuit. The results of the investigation are given in the form of nomograms that are convenient for practical utilization. (Chernovitsk.un-t, USSR).

The author's résumé

Card 1/1

KORENBLIT, L. L.
USSR/Physics - Semiconductors

FD-3108

Card 1/1 Pub. 153 - 7/24

Author : Korenblit, L. L.; Shrayfel'd, T. Ya.

Title : Theory of well conducting semiconductors
I. Equilibrium of electron gas in semiconductors

Periodical : Zhur. tekh. fiz., 25, No 6 (June), 1955, 1019-1025

Abstract : The purpose of the present article is a detailed investigation into the conditions governing the equilibrium of current carriers in semiconductors, which will permit one to find the temperature dependence of the electrical, thermoelectrical and other properties of degenerate and nondegenerate semiconductors. The authors conclude that in a semiconductor with mixed conductivity the state of the electron gas close to transitional state (i.e./μ/ very small) can occur only at low temperatures for suitable favorable conditions; at higher temperatures the chemical potential lies mainly in the middle band of the forbidden zone and its dependence on temperature can be insignificant. The author obtained the well known formulas for the temperature dependence of chemical potential in nondegenerate semiconductors, but more precise expressions are required in the case of degeneracy. The authors thank Professor A. G. Samoylovich for comments. Four references: e.g. A. G. Samoylovich, Dopovidi AN USSR, No 3, 1954

Institution :

Submitted : July 27, 1954

KORENBLIT, L.L.

USSR/Physics - Semiconductors FD-3195

Card 1/1 Pub. 153-1/28

Author : Korenblit L. L. and Shrayfeld T. Ya.

Title : Theory of semiconductors with good conductivity. II. Electric Conductivity, Thermo-e.m.f., Hall's Effect.

Periodical : Zhur. Tekh. Fiz., 25, No 7, 1182-1189, 1955

Abstract : Temperature effect on electric conductivity, thermo e.m.f. and Hall's effect in degenerated gases are analyzed. For simplification of computation only one cause of current scattering, lattice oscillations (phonons) is taken into account. Generalized results of these relations in the case of many scattering mechanisms of current carriers, as discussed in the work by A. Anselm and V. Klyachkin (ZhETF, 22, 3 (1952) lead to too cumbersome computations. Indebted to Prof. A. G. Samoylovich. Eight references, 3 foreign.

Institution :

Submitted : July 27, 1954

KORENBLIT, L. L.

Category : USSR/Electricity - Semiconductors G-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1567

Author : Samoylovich, A.G., Korenblit, L.L.
Title : Degeneracy of Electron Gas in Semiconductors

Orig Pub : Uspekhi fiz. nauk, 1955, 57, No 4, 577-630

Abstract : A systematic discourse on various theoretical problems involved in the degeneracy of electrons and holes in semiconductors, the temperature dependence of the chemical potential, and the effect of the degeneracy on the magnetic properties and on the kinetic scattering coefficient of the electrons by the impurity ions. Bibliography, 42 titles.

Card : 1/1

KORENBLIT, L. L.

USSR/ Physics - Excitons

Card 1/1 Pub. 22 - 11/50

Authors : Samoylovich, A. G., and Korenblit, L. L.

Title : Magnetic and optical characteristics of excitons

Periodical : DOK. AN SSSR 100/1, 43-44, Jan. 1, 1955

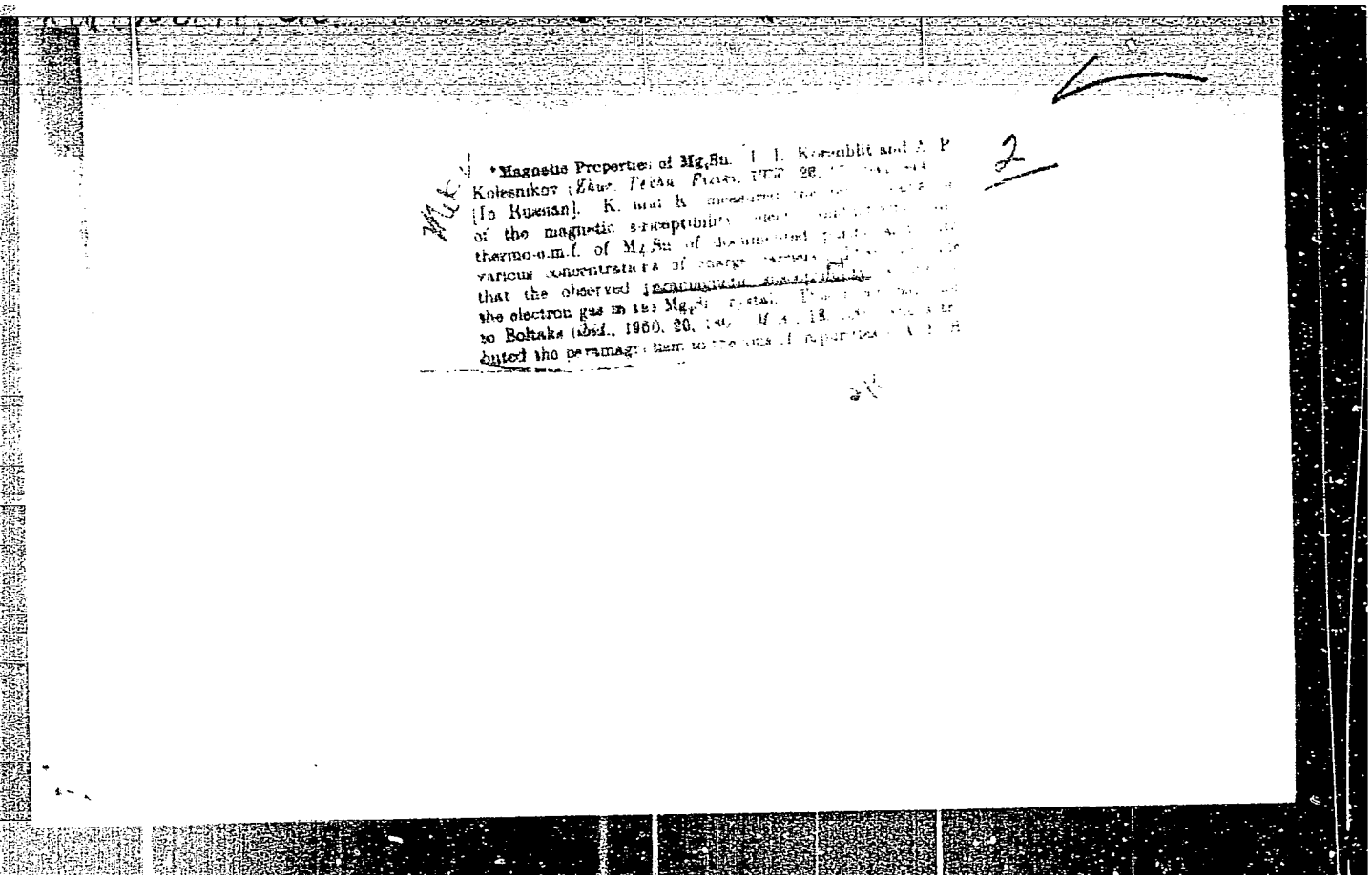
Abstract : An exciton, defined as an electron and a hole connected together, is studied mathematically. The Hamiltonian function derived from a Lagrangian function, expressing the physical system of an excitons, is simplified and interpreted in the view of its magnetic and optical properties. Two USSR references (1949 and 1953).

Institution: State University at Chernovitsy

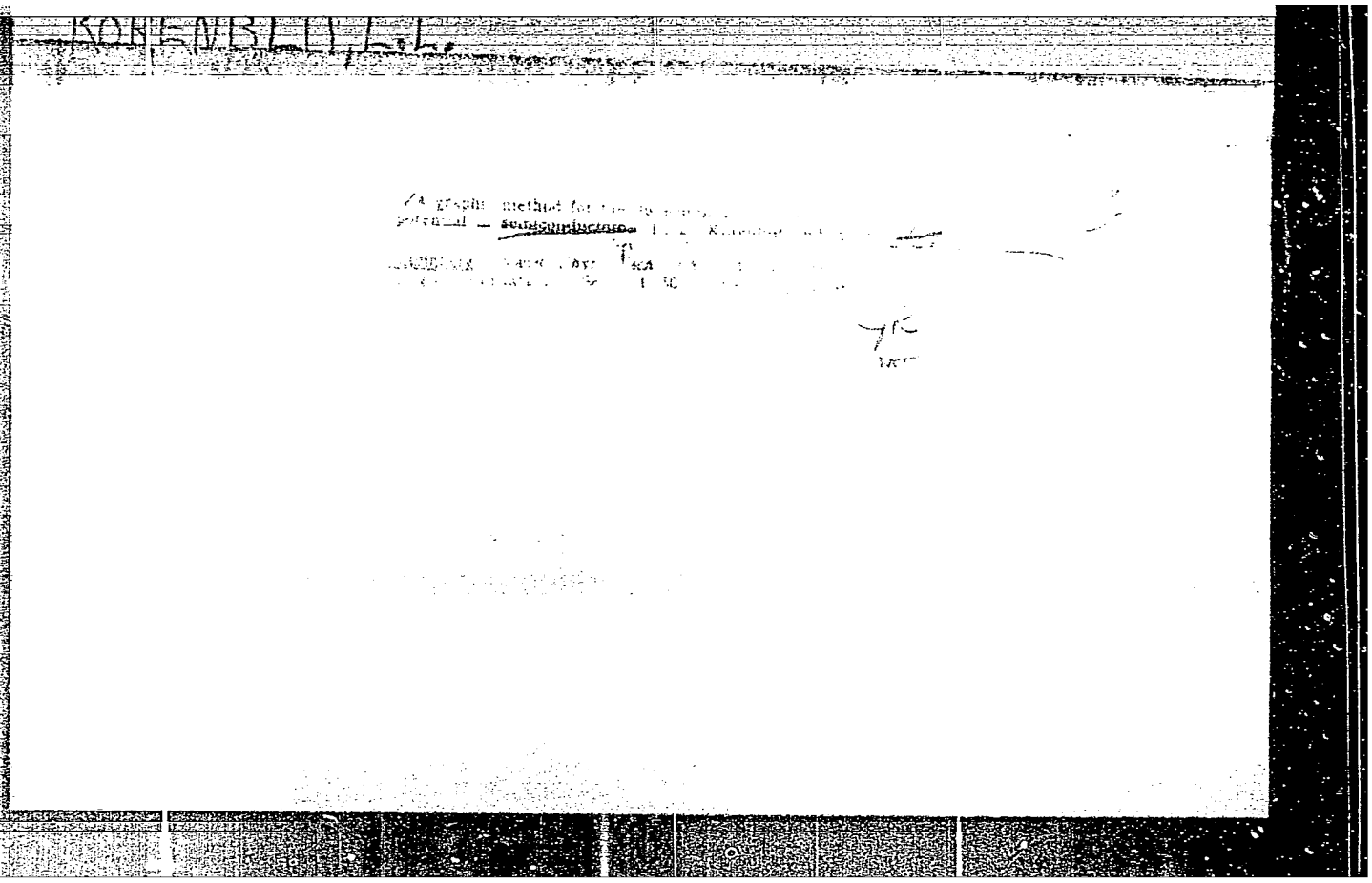
Presented by: Academician A. F. Ioffe, July 12, 1954

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1344
AUTHOR KORENBLIT, L.L., STEJNBERG, A.A.
TITLE A Graphical Method for the Determination of the Chemical Potential in Semiconductors.
PERIODICAL Žurn.techn.fis, 26, fasc. 5, 927-937 (1956)
Issued: 6 / 1956 reviewed: 10 / 1956

Here a simple, practical, and sufficiently general graphical method for the determination of the temperature dependence of the chemical potential in semiconductors is described.
Idea of the method: In various equations which describe the state of an atomic semiconductor with admixtures the right and the left side are functions of $\mu^* = (\mu/kT)$, which depend on various other quantities (energy intervals, concentration N_d and N_a of the atoms of the donor and acceptor admixture respectively, temperature, etc.). Here μ is the chemical potential of the electrons. The quantity μ can, if the temperature and the parameters of the problem are given, be determined as abscissa of the point of intersection of two functions depending on μ^*. However, this method is rendered difficult by the fact that, on the occasion of the modification of some parameters, and even at different temperatures the form of this function changes. However, if the system of reference is selected accordingly, not more than t w o different "universal" diagrams need be drawn for the purpose of determining the chemical potential even in the case of arbitrary values of the parameters. As a first example the equation



"Magnetic Properties of Mg_3Bi_2." I. I. Kamenskii and A. P. Kolesnikov (*Zhur. Tekh. Fiziki*, 1958, 28, [In Russian]. K. and K. measured the magnetic susceptibility of the magnetic susceptibility of Mg_3Sb_2 and the thermo-e.m.f. of Mg_3Sb_2 at various concentrations of charge carriers. They found that the observed ferromagnetism is due to the electron gas in the Mg_3Sb_2. Cf. also Bokiaka (*Ibid.*, 1960, 30, [illegible]) who attributed the paramagnetism to impurities.



AUTHOR: KORENBLIT, L.L. PA - 2537

TITLE: Magnetic Susceptibility of Excitons in Semiconductors. (Magnitnaya vospriimchivost' ekssitonov motta v poluprovodnikakh, Russian).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 3, pp 484 - 494 (U.S.S.R.)

Received: 4 / 1957 Reviewed: 6 / 1957

ABSTRACT: The limiting-case is investigated in which the twofold occupied places and the holes in the crystals remain in a state of being connected, i.e. where they form excitons according to Motta. The calculation is based on the assumption of a small average number of the polar-excitations which allows a quasi-classical approximation. The Hamiltonian of the system of twofold occupied places and the holes in the magnetic field is written down, on which occasion the energy of interaction between the polar excitations of the crystal are taken into account. Since the Hamiltonian in this form is not directly applicable, the Hamiltonian of Schrödinger is sought first, for which purpose the functional-method of V.Fock is used. Thus the Hamiltonian of the twofold occupied places and the holes is derived in a configuration-space in the presence of a magnetic field. An essential factor in connection with this calculation was the substitution of the crystal by a continuum. If the discrete structure of a crystal were taken into account, calculation would be much more

Card 1/2

KORENBLIT, L.L.

AUTHORS: Samoylovich, A.G., Korenblit, L. L. 57-12-1/19

TITLE: A Note on the Quantum Theory of the Kinetic Phenomena in Semiconductors (Kvantovaya teoriya kineticheskikh yavleniy v poluprovodnikakh).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 12, pp. 2673-2697 (USSR)

ABSTRACT: The attempt is made here, to take the quantum effects into consideration, which are caused by an applied external constant magnetic field in the transmission processes in semiconductors. All basic longitudinal and transversal effects (electric conductivity and the modification of resistance in the magnetic field, the Hall-effect, the thermoelectromotive force and its modification in the magnetic field etc.) are investigated here. The theory developed in this paper is based on the assumption, that the kinetic equation may be written in the form of an operator and the relaxation time may be introduced, which is also considered to be a function of the energy operator. The appearance of this function makes necessary its specific determination in separate concrete cases, which however,

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was omitted here, because the investigation aimed at purely methodical purposes. In the special cases investigated here, it was assumed, that the shape of the function $\tau(H_o)$ is identical to that of $\tau(\varepsilon)$ in the case of an absence of magnetic field. τ denotes the relaxation period, H_o the operator of the "kinetic" energy of the particle in the magnetic field. For the sake of simplicity the tensorial character of the effective electron-mass was not taken into consideration. For this reason, in the case of several effects no anisotropy was obtained. The case of a mixed conductivity was also neglected. The essential result of this paper consists in showing, that the quantum corrections are of no great importance at helium-temperatures. A few longitudinal effects are of interest, which are missing in a semi-classical approximation. An investigation of these may permit the determination of the effective mass. In the case of an unipolar conductivity the investigation of these effects permits a selection of the receptivity of the current carriers in semiconductors. This idea was first pronounced by Ya. G. Dorfman (reference 7). The present

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Card 3/5 in semiconductors at $\nabla T \parallel E \parallel \mathcal{H}$ (longitudinal effects) and

finally the dependence of the chemical potential in semiconductors on the magnetic field. $\mathcal{H}$ denotes the magnetic field, which is assumed to be directed along the z-axis, and E the potential of the electric field. On the basis of the investigation conducted here the effects connected with the quantization of the paths and an evaluation of their magnitude are explained. The conclusion may be drawn, that the taking into consideration of the quantization of the paths of the current carriers in a magnetic field has a certain effect of such and such a degree on the magnitude of all known kinetic effects. In this case the quantity $f\nu$ determining the ratio between the "zero" magnetic energy of the oscillators $\frac{1}{2}\hbar\omega_o^*$ and the average kinetic energy of the particles kT represents the essential parameter, which determines the effectiveness of the quantization of the energy-particle spectrum in the magnetic field. It is shown, that in the case of $f\nu \ll 1$ the consideration of the quantization of the paths leads to only insignificant modifications of the ordinary formulae for the electric, thermoelectric and other effects. Only in the case of

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24(3) SOV/20-123-5-16/50

AUTHORS: Samoylovich, A. G., Korenblit, L. L.

TITLE: The Faraday Effect on Mott's Excitons (Effekt Faradeya na eksitonakh Motta)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5, pp 828-831 (USSR)

ABSTRACT: This paper deals with the Faraday(Faradey) effect on Mott's excitons of not too great radii ($d < 10^{-5}$ cm). The Verde constant can be determined on the basis of their connection with the vector of gyration, and the problem is therefore reduced to the calculation of the complex polarizability of the exciton. This exciton is subjected to the influence of the constant magnetic field $\vec{H}$, and of a monochromatic electromagnetic wave of the frequency , and of the vector potential $\vec{A}(\xi)\mathrm{Re}\vec{A}_0 e^{i[\omega t-(\vec{k}\xi)]}$, $|\vec{k}| = \omega/c$ denotes the wave vector. The medium is assumed to be isotropic. After the introduction of new denotations, an expression is given for the Hamiltonian of the exciton. This Hamiltonian can be simplified noticeably in the case of dipole approximation. The authors then solve the time-dependent Schroedinger

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(Shredinger) equation. The state of the exciton (for $\vec{A} = 0$) can be described by the whole of the integrals of motion. The authors then discuss step by step the deduction of the tensor of polarizability. An expression is found also for the vector of gyration. This vector of gyration is proportional to the difference Δ of the masses of the electron and of the hole. According to the results of this paper, a Faraday effect on excitons is possible only in the case $m_e^* \neq m_h^*$. In this case the rotations of the polarization plane which are caused by the electron and by the hole completely compensate one another. (m_e^* and m_h^* denote the effective mass of the electron and of the hole, respectively). There are 4 Soviet references.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences, USSR)

PRESENTED: August 6, 1958, by A. F. Ioffe, Academician

SUBMITTED: August 1, 1958

25691
S/181/61/003/007/013/023
B102/B214

24.2700

AUTHORS: Samoylovich, A. G., and Korenblit, L. L.

TITLE: Thermoelectric eddy currents in an anisotropic medium

PERIODICAL: Fizika tverdogo tela, v. 3, no. 7, 1961, 2054-2059

TEXT: The present paper describes a theoretical investigation of thermoelectric currents in an anisotropic, nonuniformly heated medium. Assuming that a temperature gradient exists, closed thermoelectric currents must appear in such a medium, and the density of these currents can serve as a measure of the anisotropy of the thermo-emf. In such a medium, the thermo-emf between two arbitrary points 1 and 2 is given by the contour integral $V_{12} = -\frac{1}{q}\int_1^2 (\nabla\tilde{\mu}\vec{dl})$; $\tilde{\mu} = \mu + q\phi$ is the electrochemical potential, μ the chemical potential of the carriers with charge q, ϕ the electric potential, and $\vec{dl} = dx\vec{i}_1 + dy\vec{i}_2 + dz\vec{i}_3$. Current density and heat flux are given by $\vec{j} = -\frac{1}{q}\sigma\nabla\tilde{\mu} - \alpha\nabla T$,

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Thermoelectric eddy currents ...

and $\vec{W}=-\chi\nabla T+T\alpha\vec{j}$. From the continuity conditions it follows that, div $\vec{j}=0$, and div $(\chi\nabla T)+(\varrho\vec{j}\vec{j})-T$ div $(\alpha\vec{j})=0$. In the general case, ϱ, σ, χ (thermal conductivity), and α (differential thermo-emf) are tensors of second rank. The boundary conditions used are: $V_{12}=\int_1^2(\alpha\nabla T d\vec{l})$ for $\vec{j}=0$, and $V_{12}=\int_{T_1}^{T_2}\alpha(T)dT$. In the one-dimensional case in which the temperature of the sample and its characteristics depend only on one coordinate, ξ, one has $V_{12}=\int_{\xi_1}^{\xi_2}\frac{1}{\alpha}\left[T(\xi)\right]\left[\frac{dT}{d\xi}\right]d\xi$.

The case the "two-dimensional" and, all the more, that of the "three-dimensional" inhomogeneous isotropic medium is distinguished from the one-dimensional case by the fact that, even when div $\vec{j}=0$, thermoelectric eddy currents can exist in this medium. This follows trivially also from the fact that such an inhomogeneous, nonisothermal medium can be regarded as the totality of closed multicomponent microscopic thermoelements. Now, homogeneous, anisotropic bodies are considered. Also here, "one-dimensional" and "two-dimensional" systems can be realized, and it can be shown that in

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Thermoelectric eddy currents ...

a "two-dimensional" anisotropic medium thermoelectric eddy currents $j \sim (\alpha_1 - \alpha_2)$ must appear, even in the thermally steady state if div $\vec{j} \neq 0$. "One-dimensional" systems in this sense are, for example, a thin and not closed wire or filament when it is inhomogeneous or anisotropic, or a sample of regular form (rectangular plate, bar), if $T = T(x)$ where x is the longitudinal coordinate of the specimen. "Two-dimensional" is such a specimen (bar or plate) if $\varkappa_{12} \neq 0$ (inhomogeneous temperature field); in this case, an eddy current $j \sim \chi_{12}(\alpha_1 - \alpha_2)$ can appear. The situation is analogous if x forms an acute angle with the principal axis of the crystal. The "two-dimensionality" in this sense is determined by the anisotropy of χ and σ. For the eddy current one obtains: $j \sim \left(\frac{\beta_2}{\varkappa_2} - \frac{\alpha_2}{\chi_2}\right)(\alpha_1 - \alpha_2)$. The case of a disc of an anisotropic single crystal, in which a temperature gradient exists (see Fig. 1) is discussed in detail. If the positive temperature difference is denoted by $\Delta T = T_1 - T_0$ and $x/\bar{\mu}/q$ by ψ, one obtains from the relations shown in Fig. 1:

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Thermoelectric eddy currents ...

$$\psi = -\frac{\Delta T}{2\ln\frac{R_1}{R_0}}\left[(\alpha_1+\alpha_2)\ln\frac{\rho}{R_1}+(\alpha_1-\alpha_2)\frac{\cos 2\varphi}{2}\times\right.$$
$$\left.\times\left(1-\frac{\rho^2}{R_1^2+R_0^2}-\left(\frac{R_0}{\rho}\right)^2\frac{R_1^2}{R_1^2+R_0^2}\right)\right], \quad (12)$$

When taking into account div $\vec{j}=0$ and the corresponding boundary conditions, one obtains

$$j_x = -\frac{\sigma}{\rho}\left[\cos\varphi\left(\rho\frac{\partial\psi}{\partial\rho}+\alpha_1\frac{\Delta T}{\ln\frac{R_1}{R_0}}\right)-\sin\varphi\frac{\partial\psi}{\partial\varphi}\right],$$
$$j_y = -\frac{\sigma}{\rho}\left[\sin\varphi\left(\rho\frac{\partial\psi}{\partial\rho}+\alpha_2\frac{\Delta T}{\ln\frac{R_1}{R_0}}\right)+\cos\varphi\frac{\partial\psi}{\partial\varphi}\right]. \quad (18)$$

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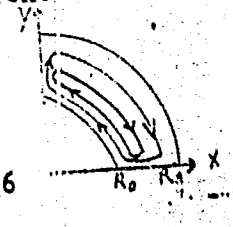
Thermoelectric eddy currents ...

and

$$j_\varphi = \frac{e}{\rho}\frac{\Delta T}{2\ln\frac{R_1}{R_0}}(\alpha_1-\alpha_2)\cos\varphi \times \left[-\cos 2\varphi + \frac{\rho^2}{R_1^2+R_0^2} + (\cos^2\varphi - 3\sin^2\varphi)\left(\frac{R_0}{\rho}\right)^2 \frac{R_1^2}{R_1^2+R_0^2}\right],$$

$$j_\rho = \frac{e}{\rho}\frac{\Delta T}{2\ln\frac{R_1}{R_0}}(\alpha_1-\alpha_2)\sin\varphi \times \left[-\cos 2\varphi - \frac{\rho^2}{R_1^2+R_0^2} + (3\cos^2\varphi - \sin^2\varphi)\left(\frac{R_0}{\rho}\right)^2 \frac{R_1^2}{R_1^2+R_0^2}\right]. \quad (19)$$

The current distribution in the disc is periodic with the period 2π in relation to φ. The magnetic moment due to the eddy currents may be used for indicating the anisotropy of the thermo-emf in such samples. There are 2 figures



Card 5/6

On the question of the structure of the conduction zone of indium arsenide. L. L. Korenblit, D. V. Mashovets, S. S. Shalyt.

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

KORENBLIT, L.L.; MASHOVETS, D.V.

Structure of the conduction band and the electron scattering mechanism in indium arsenide. Fiz. tver. tela 6 no.2:559-575 F '64. (MIRA 17:2)

1. Institut poluprovodnikov AN SSSR, Leningrad.

L 10810-65 EWT(1)/EWG(k)/EPR/EEC(b)-2 Pz-6/Ps-4 IJP(c)/ESD(gs)/SSD/
ACCESSION NR: AP4046619 AFWL AT 8/0181/64/006/010/3059/3064

AUTHOR: Korenblit, L. L.

TITLE: Investigation of closed thermoelectric currents in anisotropic crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 3059-3064

TOPIC TAGS: thermoelectric current, thermoelectric, thermal emf, bismuth, tellurium

ABSTRACT: The effect of vorticity of thermoelectric currents in homogenous but anisotropic bismuth samples of two different types was studied by the use of an astatic magnetometer. The possibility of the occurrence of closed thermoelectric currents in such materials was predicted three years ago (Samoylovich, A. G. and L. L. Korenblit, Fizika tverdogo tela, 3, 3054, 1961), and the present experiments fully confirmed the theoretical considerations. In particular, the measurements performed on samples prepared from single crystal bismuth of high purity showed that in cases when the specific resistance of the

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ACCESSION NR: AP4046619

material is not higher than 5 x 10^{-3}—1 x 10^{-2} ohm·cm, simple magnetometric measurements can yield directly the values of the anisotropy of the thermal emf. Similar experiments performed on tellurium produced no results because of the higher resistivity of the material and the insufficient density of the thermoelectric current. Measurements of the effect in CdS were impaired by the high noise level. The fact that the obtained data corresponded to the field of closed thermoelectric currents and not to some secondary effects was established by a number of preliminary tests. Orig. art. has: 5 figures and 8 formulas.

ASSOCIATION: (Institut poluprovodnikov AN SSSR, Leningrad [Institute of Semiconductors, AN SSSR)

SUBMITTED: 25Apr64 ATD PRESS: 3117 ENCL: 00

SUB CODE: SS, EM NO REF SOV: 002 OTHER: 000

Card 2/2

KORENBLIT, L.L.

Closed thermoelectric currents in anisotropic crystals.
Fiz. tver. tela 6 no.10:3059-3064 O '64. (MIRA 17:12)

1. Institut poluprovodnikov AN SSSR, Leningrad.

ALIYEV, S.A.; KORENBLIT, L.L.; SHALYT, S.S.

Temperature dependence of the effective electron mass and some data on their scattering in mercury selenide. Fiz. tver. tela 7 no.6:1673-1679 Je '65. (MIRA 18:6)

1. Institut poluprovodnikov AN SSSR, Leningrad i Institut fiziki AN AzerbSSR, Baku.

L 1602-66 EPA(s)-2/EWT(m)/ETC/EWG(m)/EWP(t)/EWP(b) IJP(c) RDW/JD/JG

ACCESSION NR: AP5014563 UR/0181/65/007/006/1673/1679

AUTHORS: Aliyev, S. A.; Korenblit, L. L.; Shalyt, S. S. 40 38 B

TITLE: Temperature dependence of the effective mass of electrons and some data on the mechanism of their scattering in mercury selenide

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1673-1679 27 27

TOPIC TAGS: mercury compound, selenide, effective mass, electron mass, electron scattering, temperature dependence

ABSTRACT: This is a continuation of earlier work (FTT v. 6, 1979, 1964), in which the energy spectra of the electrons in mercury selenide was measured at 95K. In the present investigation, the same procedure is used to determine the temperature dependence of the effective mass of the electrons at different occupation levels of the conduction band of HgSe, and to obtain some information concerning the scattering of the electrons at higher temperatures. To this end, the thermal emf coefficient and the Hall coefficient were measured at 204

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L 1602-66

ACCESSION NR: AP5014563 2

and 300K in the same samples which were used in the earlier investigations. Certain errors which have crept into the earlier paper are corrected. The results show that at electron concentrations from 4×10^{17} to 5×10^{18} cm^{-3} a temperature rise from 95 to 300K causes a reduction in the effective mass by approximately 20 per cent. The effective parameter of the electron scattering mechanism in the HgSe crystal is determined from the experimental data of the thermal emf in zero fields, and it is shown that a value 1/2 for the parameter is a sufficiently good approximation for the entire range of investigated concentrations. With decreasing temperature, however, the parameter tends to 3/2. Orig. art. has: 9 figures, 3 formulas, and 1 table.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AN SSSR; Institut fiziki AN AzSSR, Baku (Institute of Physics, AN AzSSR)

Card 2/3

L 22542-66 EWT(1)/EWT(m)/ETC(f)/EWG(m)/EWP(t) IJP(c) RDW/JD/JG/AT

ACC NR: AP6009616 SOURCE CODE: UR/0181/66/008/003/0705/0711

AUTHOR: Aliyev, S. A.; Korenblit, L. L.; Shalyt, S. S.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR); Institute of Physics, AN AzSSR, Baku (Institut fiziki AN AzSSR)

TITLE: Electron and lattice thermal conductivity of mercury selenide

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 705-711

TOPIC TAGS: thermal conduction, mercury compound, selenide, electron scattering, elastic scattering, electron mobility, crystal lattice

ABSTRACT: This is a continuation of earlier research by the authors on mercury selenide (FTT v. 7, 1671, 1965 and v. 6, 1979, 1964) and its properties. In the present article the authors determine separately the lattice and the electronic components of the thermal conductivity for different single and polycrystalline samples of HgSe with electron densities from 3.7×10^{17} to 6×10^{18} cm^{-3}, by suppressing the electronic part of the thermal conductivity with the aid of a strong magnetic field. The thermal conductivity was measured by determining the stationary heat flow through the investigated sample when the latter was placed in a vacuum chamber. The method is based on determining the energy balance during scat-

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L 22542-66

ACC NR: AP5009646

tering of electrons in the crystal (degree of elasticity of the collisions between the carriers and the scatterers) by investigating the behavior of the Lorentz number in degenerate semiconductors. It is pointed out that the method employed of separating the lattice and electronic specific thermal conductivity components can be used only for a limited number of n-type semiconductors, in which the carrier mobility is sufficiently high to be able to suppress the electronic component in a realizable stationary magnetic field, and in which the electronic component is not less than 4--5% of the total thermal conductivity of the crystal. The results show that the Lorentz number in the Wiedemann-Franz relation amounts to not more than 60% of its Sommerfeld value at T > 100K, when the scattering becomes of the impurity type and acquires an elastic character with decreasing temperature. The authors thank A. N. Zaslavskiy for determining the crystal structure of the investigated HgSe samples. Orig. art. has: 7 figures, 8 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 15Jul65/ ORIG REF: 002/ OTH REF: 003

Card 2/2 BK

KORENBLIT, R. S. and ZHDANOV, V. M.

"The Systematics and Nomenclature of Viruses," possibly from Zhur. Mikrobiol. epidemiol. i Immunobiol., pp 40-41, 1950.

This report is described as"an abbreviated version of a paper presented at the scientific conference of the Ukrainian Inst. im. Mechnikov in Khar'kov on 11 October 1949, and printed in order of acceptance."

W-31353, 6 Jul 55

KORENBLIT, R.S.

ZHDANOV, V.M.; KORENBLIT, R.S.; LAVRUSHINA, T.T.

Immunological study of the causative agent of vesicular rickettsiosis. Zhur.mikrobiol.epid.i immun. no.3:87 Mr '54. (MLRA 7:4)

1. Iz Khar'kovskogo instituta epidemiologii i mikrobiologii im. Mechnikova.
(Rickettsia)

ZHDANOV, V.M.; KREMBLIT, R.S.

[Systematics and nomenclature of viruses] Sistematika i nomenklatura virusov. 1958. pp.40-44. (MIRA 11:6)
(VIRUSES)

KORENBLIT, R.S.; MARKOVA, L.A.; RUTSHTEYN, P.V.

Antibodies to the brain component of neurovirus vaccines. Vop. virus 6 no.4:482-486 Jl-Ag '61. (MIRA 14:11)

1. Khar'kovskiy institut vaktsin i syvorotok imeni I.I.Mechnikova i TSentral'naya psikhonevrologicheskaya bol'nitsa Ministerstva putey soobshcheniya, Khar'kov.

(ANTIGENS AND ANTIBODIES) (ENCEPHALOMYELITIS)
(MULTIPLE SCLEROSIS) (RABIES)

KORENBLIT, R.S.; MARKOVA, L.A.; RUTSHTEYN, P.V.; EPSHTEYN, TS.A.

Comparative study of the methods of diagnosis of acute encephalomyelitis and multiple sclerosis. Vest. AMN SSSR 16 no.6:61-64 '61. (MIRA 15:1)

1. TSentral'naya psikhonevrologicheskaya bol'nitsa Ministerstva putey soobshcheniya i Institut vaktsin i syvorotok, Khar'kov.
(MULTIPLE SCLEROSIS) (ENCEPHALOMYELITIS)

KORENBLUM, A.

Methods for calculating the production volume in industrial enterprises. p. 71. (METALURGIA SI CONSTRUCTLA DE MASINI. Vol. 9, no. 3, Mar. 1957, Rumania)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 12, Dec. 1957 Uncl.

KORENBLYUM, B.I.

Korenblyum, B. I. On the representation of functions of class L^p by singular integrals at Lebesgue points. Doklady Akad. Nauk SSSR (N.S.) 58, 973–976 (1947). (Russian)

The problem [illegible] the convergence of singular integrals, that is, of integrals $\int_a^b \varphi_n(x, t) f(t) dt$, to the generating function $f(x)$ at the Lebesgue points of the latter, has be[en] solved in two cases only, namely for f bounded [Lebesg[ue], Ann. Fac. Sci. Univ. Toulouse (3) 1, 25–117 (1909)] a[nd] for $f \in L$ [Faddeeff, Rec. Math. [Mat. Sbornik] N.S. 1(4[3]), 351–368 (1936)]. In the present paper the author gives nec[]essary and sufficient conditions for the case $f \in L^p$, $1 < p < \infty$. Given any $\varphi(t) \in L^q(c, d)$, $q > 1$, we consider the number $\mu \geqq 0$ defined by the conditions

$$\int_{E(\mu)} |\varphi|^q dt \geqq \mu(d-c) \geqq \int_{E_1(\mu)} |\varphi|^q dt,$$

where $E(\mu)$ and $E_1(\mu)$ are, respectively, the sets of points of (c, d) at which $|\varphi| \geqq \mu$ or $|\varphi| > \mu$. If $(c, d) = r$, we shall write $\mu = \mu[\varphi(t), r, q]$. If $a < x < b$ and if x is a Lebesgue point of $f \in L^p$, $1 < p < \infty$, then necessary and sufficient conditions are (1) $\lim_{n\to\infty} \int_\alpha^\beta \varphi_n(x, t) dt = 1$ for every $\alpha < x < \beta$, $a \leqq \alpha < \beta \leqq b$; (2) $\sum_{i=1}^{\infty} (\mu_{ni}^{+} \text{ meas } r_i^{+} + \mu_{ni}^{-} \text{ meas } r_i^{-})$ is bounded in n, where

$r_i^{+} = (x + 2^{-i}(b-x),\ x + 2^{-(i-1)}(b-x))$,

$r_i^{-} = (x - 2^{-(i-1)}(x-a),\ x - 2^{-i}(x-a))$,

$\mu_{ni}^{+} = \mu[\varphi_n(x, t), r_i^{+}, q]$, $\mu_{ni}^{-} = \mu[\varphi_n(x, t), r_i^{-}, q]$, $p^{-1} + q^{-1} = 1$.

A. Zygmund (Chicago, Ill.).

Source: Mathematical Reviews, Vol 9 No. 7

KORENBLYUM, B.I.

Convergence of singular integrals for certain general classes of summable functions. Zbir.prats' Inst.mat.AN URSR no.11:60-82 '48. (Convergence) (MLRA 9:9)

KORENBLYUM, B. I.

Korenblyum, B. I., Krein, S. G., and Levin, B. Ya. On certain nonlinear questions of the theory of singular integrals. Doklady Akad. Nauk SSSR (N.S.) 62, 17-20 (1948). (Russian)

Let E be a separable Banach space, and $\bar{E}$ the space conjugate to E. Let $C([0,1];E)$ denote the space of all functions $f=f_t$ $(0\le t\le 1)$, having values in E, and strongly continuous on the segment $[0,1]$. The norm $\|f\|$ is defined as $\max_{0\le t\le 1}\|f_t\|_E$. (1) Modifying the result of Gowurin [Fund. Math. 27, 255-268 (1936)] the authors state that every linear functional in $C([0,1];E)$ is representable in the form (*) $F(f)=\int_0^1\varphi_t(f_t)\,d\alpha(t)$, where $\alpha(t)$ is nondecreasing in $[0,1]$ and φ_t a B-measurable abstract function with values in $\bar{E}$, satisfying $\|\varphi_t\|\le 1$ $(0\le t\le 1)$. Conversely every expression (*) is a linear functional in $C([0,1];E)$ with norm $\|F\|=\mathrm{var}_{0\le t\le 1}\alpha(t)$. The representation (*) is unique except for the normalization of $\alpha(t)$ and the values of φ_t on a set of measure 0 with respect to $\alpha(t)$. (2) Let L_ϕ^p $(p\ge 1)$ be the space of all functions $f(x)\in L^p(0,1)$ satisfying $\lim_{h\to 0}h^{-1}\int_0^h|f(x)|^p dx=0$, the norm $\|f\|_\phi$ being defined as $\max_{0\le t\le 1}[h^{-1}\int_0^h|f(x)|^p dx]^{1/p}$. Then the general linear functional in L_ϕ^p is of the form (*) $F(f)=\int_0^1 F(x)f(x)dx$, where the function $F(x)$ has the following property: the maximal convex function $\Phi(x)$ majorized on $(0,1)$ by $\int_t^1|F(t)|^q dt$ $(p^{-1}+q^{-1}=1)$ satisfies $\int_0^1[-\Phi'(x)]^q dx<\infty$. Conversely every $F(x)$ having this property generates a functional (*) with norm $\|F\|=\int_0^1[-\Phi'(x)]^q dx$. This is obtained as a special case of a general result concerning functionals associated with kernels $\theta(x,\tau)$ defined in the square $0\le x,\tau\le 1$. Results of similar type are obtained for sequences of functionals. A. Zygmund (Chicago, Ill.)

Source: Mathematical Reviews, Vol. 10, No. 5

KORENBLYUM, B. I. PA 27/49T69

USSR/Mathematics - Algebra, Abstract Jan 49
Mathematics - Topology

"Certain Special Commutatively Normed Rings," B. I. Korenblyum, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 3

Constructs a class of commutatively normed rings, defined by the functions $\theta(x)[x \in G]$ and the index $r \geq 1$, in Abel's locally compact group G, which satisfies the second axiom of enumerability and generalizes Wiener's work in this field. Submitted 18 Nov 48.

[redacted] 27/49T69

KORENBLYUM, B. I.

Korenblyum, B. I. On the convergence theory of Fourier series. Dopovidi Akad. Ukrain. RSR 1951, 320–323 (1951). (Ukrainian. Russian summary)

The author gives the following generalization of the Lebesgue-Gergen criterion for the convergence of Fourier series [Gergen, Quart. J. Math., Oxford Ser. 1, 252–275 (1930)]. Let $f(x)$ be periodic, with period 2π, even and integrable. The Fourier series of f converges to 0 at the point 0 provided

$$\int_0^t f(t)\,dt = o(\tau),$$

$$\lim_{h\to\infty} \limsup_{\tau\to 0} \int_{h\tau}^{\pi} t^{-1} \left| \sum_{n=0}^{N} (-1)^n \alpha_n f(t+n\tau) \right| dt,$$

where α_n $(n=0, 1, \cdots, N)$ are non-negative numbers not all equal to zero and satisfying the condition

$$\alpha_0+\alpha_2+\alpha_4+\cdots=\alpha_1+\alpha_3+\cdots$$

(σ is any positive number). In Gergen's case $\alpha_n=\binom{N}{n}$.

A. Zygmund (Cambridge, England).

Inst Math
Acad Sci UkR SSR

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KORENBLYUM, B. I.

191T80

USSR/Mathematics - Monotonic Functions Jul/Aug 51

"Concerning Two Theorems From the Theory of Absolutely Monotonic Functions" B. I. Korenblyum

"Uspekh Matemat Nauk" Vol VI, No 4 (44), pp 172-175

Proposes an elementary proof of the familiar theorem of S. N. Bernshteyn ("Sur les fonctions absolument monotones," Act Mathematica, 52, 1929, 1-66) concerning the absolutely monotonic functions, and also a theorem of D. V. Widler ("Necessary and Sufficient Conditions for the

191T80

USSR/Mathematics - Monotonic Functions (Contd) Jul/Aug 51

Representation of a Function as a Laplace Integral," Trans Am Math Soc, 33, 1931, 851-892).

191T80

KORENBLYUM, B. I.

185T62

USSR/Mathematics - Integrals, Lacunary — 21 Feb 51

"Concerning the Laplace-Stieltjes Lacunary Integrals," B. I. Korenblyum, Inst Math, Acad Sci Ukrainian SSR

"Dok Ak Nauk SSSR" Vol LXXVI, No 6, pp 779-782

Considers Laplace-Stieltjes integral $S(t) = \int_0 ds(x) \cdot \exp(-tx)$, where function s(x) satisfies usual conditions: s(0) = 0, etc. Cf. Hardy and Littlewood, "Proc London Math Soc" (2), 25, 219, 1926; Pitt, ibidem (2), 44, 243,

185T62

USSR/Mathematics - Integrals, Lacunary (Contd) — 21 Feb 51

1938. Demonstrates one theorem, that $s(x) \to s$ as $x \to \infty$ for various conditions on sequence of intervals. Submitted 29 Dec 50 by Acad A. N. Kolmogorov.

185T62

KORENBLYUM B.I.

Korenblyum, B. I. Theorems of Tauberian type for a class of Dirichlet series. Doklady Akad. Nauk SSSR (N.S.) 81, 725–728 (1951). (Russian)

A generalization of the Hardy-Littlewood "high indices theorem" with an unusual Tauberian condition is announced. If the positive numbers λ_n for some non-negative integer r satisfy the condition $\lambda_{n+r+1}/\lambda_n \geq k > 1$, then Abel's $A(\lambda_n)$-summability of a series $\sum u_n$ implies its Riesz (R, λ_n, r)-summability. Hardy-Littlewood's theorem is obtained by taking $r=0$. Moreover, with a constant $M = M(r, k)$,

$$\sup_{x>0} \left| \sum_{\lambda_n \leq x} \left(1 - \frac{\lambda_n}{x}\right)^r u_n \right| \leq M \sup_{x>0} \left| \sum_{n=1}^{\infty} u_n e^{-\lambda_n x} \right|.$$

If $\liminf_{n\to\infty} (\lambda_{n+r+1}/\lambda_n) = 1$, there is an $(R, \lambda_n, r+1)$-summable series whose (R, λ_n, r)-means are not bounded.

G. G. Lorentz (Toronto, Ont.).

Source: Mathematical Reviews, Vol. 13 No. 6

USSR/Mathematics - Approximations, Interpolations 21 Dec 51

"Concerning a Problem of Interpolation," B. I. Korenblyum, Inst of Math, Acad Sci Ukrainian SSR

"Dok Ak Nauk SSSR" Vol LXXXI, No 6, pp 991-994

Considers the following problem: Given an increasing sequence of numbers (L_n) and a certain sequence of real numbers (u_n). Find the conditions for which there exist a function $f(x)$ which is the difference of 2 absolutely montonic functions on the entire pos x-axis and which satisfies the eqs $f(L_n)=u_n$

215T39

$(n=1,2,..)$. Employs the well-known theorems of S. N. Bernshteyn in the soln of this problem. Submitted 18 Oct 51 by Acad M. V. Keldysh.

215T39

KORENBLYUM, B.I.

KORENBLYUM, B.I.

Mathematical Reviews
Vol. 14 No. 9
October 1953
Analysis

Korenblyum, B. I. **A general Tauberian theorem for the ratio of functions.** Doklady Akad. Nauk SSSR (N.S.) 88, 745–748 (1953). (Russian)

Let

$$f(x)=\int_0^\infty k(\xi/x)d\phi(\xi), \quad g(x)=\int_0^\infty k(\xi/x)d\psi(\xi)$$

and $f(x)/g(x)\to 1$ for $x\to\infty$. Then $\psi(x)/\phi(x)\to 1$. This Tauberian theorem is proved under the assumptions that $k(x)\geqq 0$, $k(0_+)>0$, $k(x)=o(x^{-\gamma})$ as $x\to\infty$ $(\gamma>0)$, $\int_0^\infty |k'|(1+x^\gamma)dx<\infty$, that the integral equation

$$\int_0^\infty k'(xt)s(t)dt=0, \quad 0<x<\infty,$$

has no non-trivial solutions $s(x)$ with $s(x)=O(x^\gamma)$, $x\to\infty$, and that ϕ, ψ are positive increasing with $\lim \phi(x)=\infty$, $\phi(y)/\phi(x)\leqq(y/x)^\gamma$ for large $x, y, x<y$. In case $k(x)=(1+x)^{-m}$, $0<\gamma<m$, this contains a theorem of M. V. Keldyš [Trudy Mat. Inst. Steklov. 38, 77–86 (1951); these Rev. 13, 738]. The proof, unlike that of Keldyš, is elementary and uses the inverse of l'Hôpital's theorem for the integrals of ϕ and ψ and the fact that each function $h(x)$ with $\|h\|=\int_0^\infty |h(x)|(1+x^\gamma)dx<+\infty$ is approximable, in this norm, by linear combinations of the form $\sum_{i=1}^n C_i k'(\alpha_i x)$, $\alpha_i>0$.

G. G. Lorentz (Detroit, Mich.).

KORENBLYUM, B. I.

"Some Applications of Functional Analysis in the Theory of the Summation of Series and Integrals." Dr Phys-Math Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, Moscow, 1954. (KL, No 14, Apr 55)

So: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/2 PG - 180
AUTHOR KORENBLUM B.I.
TITLE On the asymptotic behavior of the Laplace integrals in the neighborhood of the boundary of the region of convergence.
PERIODICAL Doklady Akad. Nauk 104, 173-176 (1955)
reviewed 7/1956

Let

(1) $$f(x) = \sum_{n=0}^{\infty} a_n x^n, \qquad g(x) = \sum_{n=0}^{\infty} b_n x^n \qquad (a_n \geq 0;\ b_n > 0)$$

be two power series of the real argument x which converge for $|x| < 1$. Let

(2) $$s_n = \sum_{i=0}^{n} a_i \qquad \sigma_n = \sum_{i=0}^{n} b_i \qquad (n=0,1,2,\ldots).$$

From

(3) $$s_n \sim \sigma_n \qquad (n \to \infty)$$

as is well known there follows

(4) $$f(x) \sim g(x) \qquad (x \to 1-0).$$

The inverse question, when from (4) there follows the relation (3) was treated by Karamat (Journ. reine u.angew. Math. 164, (1931) No.?) under strong restriction of the series g(x). The author proves a theorem which is valid for an essentially greater class of the series g(x): If the coefficients of

Name: KOHENBLYUM, Boris Isaakovich

Dissertation: Certain applications of functional analysis in the theory of summation of series and integrals

Degree: Doc Phys-Math Sci

Affiliation: Kiev Constuction Engineering Inst

Defense Date, Place: 27 Feb 56

Certification Date: 6 Apr 57

Source: BMVO 14/57

KOHENBLYUM, B. I.

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/3 PG - 791

AUTHOR KOHENBLYUM, B. I.

TITLE Generalization of a Tauber theorem of Wiener and the spectrum of quickly increasing functions.

PERIODICAL Doklady Akad. Nauk 111, 280-282 (1956)

reviewed 5/1957

Let $L(-\infty, +\infty, \alpha)$ be the complex Banach space of measurable functions $f(x)$ $(-\infty < x < \infty)$ with the norm

$$\|f\| = \int_{-\infty}^{+\infty} |f(x)e^{\alpha|x|}\, dx < \infty , \qquad \alpha > 0.$$

Introducing in this space the reduction as a multiplication of elements, then $L(-\infty, \infty; \alpha)$ becomes a commutative normalized ring (without unity). Let $\mathfrak{M}$ be a set of elements of this ring. Let $I_{\mathfrak{M}}$ be the ideal generated by $\mathfrak{M}$.

Theorem: In order that $I_{\mathfrak{M}}$ is identical with $L(-\infty, \infty; \alpha)$ it is necessary and sufficient that 1) the Fourier series $F(z) = \int_{-\infty}^{+\infty} f(x)e^{-ixz}dx$ of all functions $f(x) \in \mathfrak{M}$ vanish in no point of the complex strip $|\operatorname{Im} z| < \alpha$ and 2) $\delta^{+}(\mathfrak{M}) = \delta^{-1}(\mathfrak{M}) = 0$, where

A further theorem asserts that the minimal subspace I_g of M being invariant with respect to the convolution $g_\tau(x) = g(x-\tau)$ has at least one function of the type $e^{-i\lambda x}$ $(|\mathrm{Im}\lambda| \leq \alpha)$ or $e^{-i\mu_1 x}/\Gamma(\frac{1}{2} + \frac{2\alpha x i}{\pi})$ or $e^{-i\mu_2 x}/\Gamma(\frac{1}{2} - \frac{2\alpha x i}{\pi})$ (μ_1 and μ_2 real). The sets of numbers $\{\lambda\}$, $\{\mu_1\}$ and $\{\mu_2\}$ are denoted as harmonical, right anharmonical and left anharmonical spectrum of $g(x) \in M$, respectively. Two theorems on the analytic character of the function classes with a given spectrum are given.

INSTITUTION: Engineering Institute, Kijev.

KORENBLUM B.I.

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/2 PG - 775
AUTHOR KORENBLUM B.I.
TITLE Harmonic analysis of quickly increasing functions.
PERIODICAL Uspechi mat.Nauk 12, 1, 201-203 (1957)
reviewed 5/1957

Let $L(-\infty, +\infty, \alpha)$ be the space of functions $f(x)$ with the norm

$$\|f\| = \int_{-\infty}^{+\infty} |f(x)| e^{\alpha|x|} dx < \infty, \quad \alpha > 0, \quad (-\infty < x < \infty).$$

Let $M(-\infty, +\infty, \alpha)$ be the space of functions $g(x)$ with the norm

$$\|g\| = \operatorname{vrai\,max}_{-\infty<x<\infty} \left\{ e^{-\alpha|x|} |g(x)| \right\} < \infty.$$

By introduction of a suitable multiplication $L(-\infty, +\infty, \alpha)$ becomes a commutative normalized ring (without unity). Let I_f be the ideal generated by $f(x)$ of this ring. I_f is the smallest closed subspace of $L(-\infty, +\infty, \alpha)$ which is invariant with respect to the operation $f_\tau(x) = f(x-\tau)$ $(-\infty < \tau < \infty)$.
Theorem: In order that I_f is identical with the whole space $L(-\infty, +\infty, \alpha)$ it is necessary and sufficient that

1. $$F(z) = \int_{-\infty}^{+\infty} f(x) e^{-ixz} dx \neq 0, \quad (|\operatorname{Im} z| \leq \alpha),$$

KORENBLYUM, B.I.

AUTHOR: Korenblyum, B.I. 20-2-7/62

TITLE: On a Standardized Ring of Functions With Convolution. (Ob odnom normirovannom kol'tse funktsiy so svertyvaniyem)

PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol. 115, Nr 2, pp. 226-229 (USSR)

ABSTRACT: The present report is a continuation of the study of the ideals of the ring $L(-\infty,\infty,\alpha)$ (B.I. Korenblyum, Dokl.Akad.Nauk, 1956, Vol.111, Nr 2). The author here gives a complete description of the ideals of this ring with a finite body lying within the strip $|\mathrm{Im} z| \leq \alpha$ This permits the solution of the problem of the harmonic synthesis for several general classes of rapidly increasing functions. The obtained results are then applied to homogeneous integral equations of the convolution type. $L(-\infty,\infty;\alpha)$ is a commutative, standardized ring of the measurable functions $f(x)$, $(-\infty < x < \infty)$ with the norm $\|f\| = \int_{-\infty}^{\infty} |f(x)| e^{\alpha|x|} dx < \infty$ $(\alpha > 0)$. The convolution is here connected with the increase of the elements with the norm $\|g\| = \operatorname{vrai} \max_{-\infty<x<\infty} \left\{ e^{-\alpha|x|} |g(x)| \right\} < \infty$.

The here obtained ring consists of the elements $\lambda e + f(x)$, where $f(x) \in L(-\infty,\infty;\alpha)$ applies and λ signifies any complex number; The space of the maximum ideals of this ring is homeomorphic to the complex strip $|\mathrm{Im} z| \leq \alpha$ with an adjoined, infinitely distant point. Altogether 5 theorems are given here, one of them solves one of the simplest problems of the harmonic synthesis.
There are 8 references, 5 of which are Slavic.

Card 1/2

On a Standardized Ring of Functions With Convolution 20-2-7/62

ASSOCIATION: Kiyev Institute for Civil Engineers. (Kiyevskiy inzhenerno-stroitel'niy institut)

PRESENTED: February 24, 1957 by Bogolyubov, N.N., Academician

SUBMITTED: December 1o, 1956

AVAILABLE: Library of Congress.

Card 2/2

KORENBLYUM, B.I

PHASE I BOOK EXPLOITATION 1087

Moskovskoye matematicheskoye obshchestvo

Trudy, t. 7 (Transactions of the Moscow Mathematical Society, v. 7) Moscow, Fizmatgiz, 1958. 438 p. 1,500 copies printed.

Editorial Staff: Aleksandrov, P.S.; Gel'fand, I.M. and Golovin, O.N.; Ed.: Lapko, A.F.; Tech. Ed.: Yermakova, Ye.A.

PURPOSE: This book presents original articles submitted to the Moscow Mathematical Society and is intended for specialists in various fields of mathematics.

COVERAGE: Volume 7 contains 12 articles concerning problems in different fields of mathematics, including functional analysis, differential geometry and mathematical logic. All contributions in this volume are Soviet. Most of the articles deal with problems of functional analysis which reflect the present-day status and trend of this branch of mathematics.

Card 1/3

[illegible] lowing sections: Introduction; 1) Basic definitions; 2) Splitting of linear

Card 2/3

KORENBLYUM, B.I.; TETEL'BAUM, S.I.; TYUTIN, A.A.

One tomographic system. Izv.vys.ucheb.zav.; radiofiz. 1 no.3:151-157 '58. (MIRA 12:1)

1. Kiyevskiy politekhnicheskiy institut.
(X rays)

KORENBLYUM, B.I. (Kiyev)

Generalization of Wiener's Tauberian theorem and harmonic analysis of fast growing functions. Trudy Mosk.mat. ob-va 7:121-148 '58.
(MIRA 11:8)

(Functional analysis)

KORENBLYUM, B. F.

Q-2

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

Section on Probability Theory

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KORENBLYUM, B.I.

PHASE I BOOK EXPLOITATION SOV/3981

Issledovaniya po sovremennym problemam teorii funktsiy kompleksnogo peremennogo; sbornik statey (Investigation of Modern Problems in the Theory of Complex Variables; Collection of Articles) Moscow, Fizmatgiz, 1960. 5?? p. 3,000 copies printed.

Ed. (Title page): A. I. Markushevich; Eds. (Inside book): V. S. V[illegible] and S. Ya. Khavinson; Tech. Ed.: N. Ya. [illegible].

PURPOSE: This book is intended for specialists in the theory of functions of a complex variable. It may also be used by advanced university students, scientific workers, and specialists in other fields of mathematics.

COVERAGE: The book contains 48 papers originally read at the Third All-Union Conference on the Theory of Functions of a Complex Variable held at [illegible] University from May 23 to June 2 1957. The articles treat [illegible] problems in the modern theory of functions and its applications. The book is divided into 7 parts. The first part discusses the problem of [illegible], power series, boundary and extremal properties. The second part discusses entire functions and interpolation and approximation problems. The third part discusses functions of many complex variables. The fourth part discusses conformal mappings and boundary-value problems. The fifth part discusses [illegible] and the theory of distribution of values. The [illegible] part [illegible], and the seventh part discusses [illegible]

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AC/dwm/fal
7-18-60

KORENBLYUM, B.I.

Weierstrass' theorem in spaces of infinitely differentiable functions. Dokl. AN SSSR 150 no.6:1214-1217 Je '63. (MIRA 16:8)

1. Kiyevskiy inzhenerno-stroitel'nyy institut. Predstavleno akademikom A.N.Kolmogorovym.

(Functions, Periodic) (Banach spaces)

MITROPOL'SKIY, Yu.A., akademik, otv. red.; BOGOLYUBOV, N.N., akademik, glav. red.; LUR'YE, A.I., red.; LYKOVA, O.B., kand. fiz.-matem. nauk, red.; NEMYTSKIY, V.V., prof., red.; PISARENKO, G.S., red.; POGREBYSSKIY, I.B., kand. fiz.-matem.nauk, red.; KORENBLYUM, B.I., doktor fiz.-matem.nauk, red.; KOZUBOVSKAYA, I.G., red.; LISOVETS, A.M., tekhn. red.

[Proceedings of the International Symposium on Nonlinear Oscillations] Trudy Mezhdunarodnogo simpoziuma po nelineinym kolebaniiam. Kiev, Izd-vo AN USSR. Vol.2.[Qualitative methods in the theory of nonlinear oscillations] Kachestvennye metody teorii nelineinykh kolebanii. 1963. 538 p. [Applications of the methods in the theory of nonlinear oscillations to problems in physics and technology] Prilozheniia metodov teorii nelineinykh kolebanii k zadacham fiziki i tekhniki. 1963. 513 p. (MIRA 17:1)

1. International Symposium on Nonlinear Oscillations, Kiev, 1961. 2. Akademiya nauk Ukr.SSR (for Mitropol'skiy). 3. Chlen-korrespondent AN SSSR (for Lur'ye). 4. Chlen-korrespondent AN Ukr.SSR (for Pisarenko).

KORENBLYUM, B.I.

Quasi-analytic classes of functions in a circle. Dokl. AN SSSR 164 no.1:36-39 S '65. (MIRA 18:9)

1. Kiyevskiy inzhenerno-stroitel'nyy institut. Submitted February 8, 1965.

ACCESSION NR: AP4011184 S/0286/64/000/001/0048/0049

AUTHOR: Korenchenko, M. M.; Bogoslovskiy, K. Ye.; Kutuzova, G. A.; Lelekov, V. S.; Smirnov, B. V.

TITLE: A method for calibrating acceleration pickups working under pulse conditions. Class 42, No. 159668

SOURCE: Byul. izobret. i tovarn. znakov, no. 1, 1964, 48-49

TOPIC TAGS: acceleration pickup, accelerometer, accelerometer calibration, acceleration pickup calibration

ABSTRACT: The patient describes a method for calibrating acceleration pickups working under pulse conditions in a shock tube under the action of a gas dynamic pulse load. For determining the sensitivity of the pickup in a wide range of accelerations, the pickup is mounted in a sliding piston inside the shock tube. The displacement of the piston due to the action of the gas dynamic pulse load determines the sensitivity of the pickup. (see Enclosure 01).

ASSOCIATION: none

Card 1/1 Sub 9 May 64

KORENCHENKO, S.M.

USSR/ Physics - H^4 nuclei

Card 1/1 Pub. 22 - 18/53

Authors : Reut, A. A.; Korenchenko, S. M.; Yur'ev, V. V. and Pontekorvo, B. M.

Title : An attempt to discover the H^4 nuclei among the carbon fission products by the action of protons of 300 Mev energy

Periodical : Dok. AN SSSR 102/4, 723-725, Jun 1, 1955

Abstract : Experiments are described which were conducted to discover the β - reactive H^4 nuclei among the fission products bombarded by protons of 300 - 430 Mev. A telescope consisting of 3 proportional counters installed inside the chamber of a synchro-cyclotron was used in the experiments. Eleven references: 4 USSR, 6 USA and 1 Canada (1950-1952). Table; diagram.

Institution : The Acad. of Sc., USSR, Institute of Nuclear Problems

Presented by : Academician L. A. Artsimovich, May 5, 1955

KORENCHENKO, S.M.

ELASTIC SCATTERING OF 307 MEV NEGATIVE PIONS BY HYDROGEN. S. M. Korenchenko and V. G. Zinov. Translated from a publication of the Joint Inst. for Nuclear Research, U.S.S.R. Mar. 1957. 9p.

The angular distribution of π^--mesons in the process $\pi^- + p \rightarrow \pi^- + p$ was investigated with a scintillation counter method. The pion beam was incident on liquid hydrogen and scattered mesons were detected simultaneously at two angles by telescopes consisting of two liquid scintillation counters. (M.H.R.)

KORENCHENKO, S.M

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R00082462000l

AUTHOR ZINOV, V.G., KORENCHENKO, S.M. 56-2-3/47

TITLE Elastic Scattering of 307 MeV π^--Mesons by Hydrogen (Uprugoye rasseyaniye π^--mezonov s energiyey 307 MeV na vodorode.Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 33, Nr 2 (8), pp 335 - 338 (U.S.S.R.)

ABSTRACT By means of scintillation counters the angular distribution of the 307 ± 9 MeV - π^- - mesons, which were elastically scattered by hydrogen, was measured.

Angles in C.M.S.	Differential cross section in mb/steradian
41°20'	1,30 ± 0,27
60°35'	1,05 ± 0,13
78°28'	0,75 ± 0,09
99°57'	0,49 ± 0,06
118°59'	0,61 ± 0,07
140°01'	0,89 ± 0,10
160°16'	1,12 ± 0,12

In a general manner, the angular distribution can be described by the equation $d\sigma/d\omega = [(0,56 \pm 0,05) + (0,42 \pm 0,11)\cos\vartheta + (1,10 \pm 0,16)\cos^2\vartheta]$ mb/steradian.

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Korenchenko, S.M.

Korenchenko, S.M.

AUTHOR: Zinov, V.G., Korenchenko, S.M. 56-5-44/46

TITLE: The Scattering of 307 MeV π^- -Mesons by Hydrogen with Charge Exchange Phenomena (Rasseyaniye π^- -mezonov na vodorode s perezaryadkoy pri energii 307 MeV)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol. 33, Nr 5, pp. 1308-1309 (USSR)

ABSTRACT: The angular distribution of γ -quanta originating from π^0-meson decay was measured by means of oscillation counters. The π^0-mesons are obtained from the reaction $\pi^- + p \rightarrow \pi^0 + n$. The π^- -mesons originate from a synchrocyclotron and have an energy of 307±9 MeV. For the differential cross section in the form $d\sigma/d\omega = a + b \cos\vartheta + c \cos^2\vartheta$ the coefficients were determined for the angular distribution of the π^0-mesons as follows:

$$a_0 = 0{,}57 \pm 0{,}23; \quad b_0 = 2{,}10 \pm 0{,}34;$$

$$c_0 = 2{,}64 \pm 0{,}60$$

Card 1/2

Korenchenko S. M.

AUTHORS: Zinov, V. G., Korenchenko, S. M.

56-2-5/51

TITLE: The Production of Pions by Negative Pions on Hydrogen Near the Threshold (Obrazovaniye π-mezonov π^--mezonami na vodorode vblizi poroga)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol 34, Nr 2, pp 301-311 (USSR)

ABSTRACT: This work examins by scintillation counters the production of pions on hydrogen by negative pions with the energy 307, 333, and 370 MeV. In the interaction of negative pions with hydrogen besides the scattering processes $\pi^- + p \rightarrow \pi^- + p$ (elastic scattering) and $\pi^- + p \rightarrow \pi^0 (\rightarrow 2\gamma) + n$ (exchange scattering) the following production processes are possible: $\pi^- + p \rightarrow \pi^- + \pi^+ + n$ (3); $\pi^- + p \rightarrow \pi^- + \pi^0 + p$ (4); $\pi^- + p \rightarrow \pi^0 + \pi^0 + n$ (5). The aim of this work is the estimation of the cross sections of the processes (3) and (4) in the range of the energies 300 to 370 MeV. Beams of negative pions with the energy of 250, 307, 333, and 370 MeV were used, which were obtained behind the magnet yoke of the synchro-cyclotron of the United Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy). For each of the above given energies

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of the beam the intensity distribution over the cross section of the beam was investigated by means of a scintillation counter. The particles were recorded by scintillation counters. The circuit diagram of the electronic device is illustrated by a figure. The target of liquid hydrogen was kept in a container of penopolystyrene. In case of the experiments discussed here those charged mesons were recorded, which were produced by the processes (3) and (4) and which flew off at the angle 80° in the laboratory coordinates system. Also the corrections which have to be put in at the measurings are discussed very detailled. The values obtained by various measurings and the corrections put in at them are composed in a table. If the primary beam has an energy of 250 MeV no mesons produced on hydrogen are registered. The high energy threshold at the recording is to a high degree caused by an aluminium filter which is fixed between 2 counters. The formula for the computation of the differential cross section for the production of a charged meson through the angle 80° in the laboratory system is written down here. The differential cross sections obtained in case of various angles are illustrated by a diagram. The differential cross section increases quickly with increasing

energy. At the energy 370 MeV the measured cross section is ~60% of the differential cross section of the elastic scattering. There are 9 figures, 1 table, and 12 references, 7 of which are Slavic.

ASSOCIATION: United Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy)

SUBMITTED: October 19, 1957

AVAILABLE: Library of Congress

1. Pions-Production 2. Scintillation counters-Applications
3. Hydrogen-Meson cross section studies

KORENCHENKO, S. M., Candidate Phys-Math Sci (diss) -- "The interaction of π-mesons with hydrogen in the energy range from 240 to 370 MEV". Dugna, 1959. 14 pp (Joint Inst of Nuclear Research, Laboratory of Nuclear Problems), 160 copies (KL, No 24, 1959, 125)